The Future of the Private Flood Insurance Market in Louisiana

John Hageman, March 2020
Future of Private Flood Insurance
Private Flood Insurance – Start with NFIP

Difference Between Earned Premium and Claims Paid by NFIP By Year
(1978–2015 in $Millions)

Sources: FEMA
Private Flood Insurance – Start with NFIP


Paperback
$24.99

✓prime Get it as soon as Tue, Feb 18
FREE Shipping on orders over $25 shipped by Amazon

Mass Market Paperback
$33.36

$3.99 shipping
Only 1 left in stock - order soon.

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>SINGLE FAMILY</th>
<th>2-4 FAMILY</th>
<th>OTHER RESIDENTIAL</th>
<th>NON-RESIDENTIAL BUSINESS*</th>
<th>OTHER NON-RESIDENTIAL*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Building</td>
<td>Contents</td>
<td>Building</td>
<td>Contents</td>
<td>Building</td>
</tr>
<tr>
<td></td>
<td>1.12/1.03</td>
<td>1.41/1.84</td>
<td>1.12/1.03</td>
<td>1.12/2.26</td>
<td>2.36/4.43</td>
</tr>
<tr>
<td></td>
<td>1.20/1.51</td>
<td>1.41/1.55</td>
<td>1.20/1.51</td>
<td>1.20/1.80</td>
<td>2.48/4.32</td>
</tr>
<tr>
<td></td>
<td>1.20/1.81</td>
<td>1.41/1.84</td>
<td>1.20/1.81</td>
<td>1.20/2.24</td>
<td>2.49/5.47</td>
</tr>
<tr>
<td></td>
<td>1.12/1.03</td>
<td>1.41/1.84</td>
<td>1.12/1.03</td>
<td>1.12/2.26</td>
<td>2.36/4.43</td>
</tr>
<tr>
<td></td>
<td>1.12/1.03</td>
<td>1.41/1.55</td>
<td>1.12/1.03</td>
<td>1.12/2.36</td>
<td>2.36/4.43</td>
</tr>
<tr>
<td></td>
<td>1.12/1.03</td>
<td>1.41/1.84</td>
<td></td>
<td></td>
<td>2.36/4.43</td>
</tr>
<tr>
<td></td>
<td>1.12/1.03</td>
<td>1.41/1.55</td>
<td></td>
<td></td>
<td>2.36/4.43</td>
</tr>
<tr>
<td></td>
<td>1.41/1.55</td>
<td>1.41/1.55</td>
<td></td>
<td></td>
<td>4.68/3.80</td>
</tr>
<tr>
<td></td>
<td>1.41/1.84</td>
<td>1.41/1.84</td>
<td></td>
<td></td>
<td>4.68/8.90</td>
</tr>
<tr>
<td></td>
<td>1.41/1.84</td>
<td>1.41/1.84</td>
<td></td>
<td></td>
<td>4.68/3.80</td>
</tr>
<tr>
<td></td>
<td>1.41/1.28</td>
<td>1.41/1.28</td>
<td></td>
<td></td>
<td>4.68/3.31</td>
</tr>
<tr>
<td></td>
<td>Manufactured (Mobile) Home</td>
<td>]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Private Flood Insurance – Start with NFIP

10 STATES DOMINATE FLOOD PROGRAM

Of the nearly 5 million homes and businesses covered by the National Flood Insurance Program, about 80 percent are in 10 states.

SOURCE Federal Emergency Management Agency data for March 31, 2017
Janet Loehrke, USA TCIDAY
Future of Private Flood Insurance
US storm surge modeling

Swiss Re Tropical Cyclone Track Set
- Land fall angle
- Probabilistic track set
- Historical track record
- Pressure
- Storm history
- Forward speed
- Radius of max winds
- Near term frequency
- Climatology

 NOAA Slosh Model
- Bathymetry
- Flood Protection
- Mean surge height
- Basin
- Topography

Flood depth

US storm surge modeling

Swiss Re Tropical Cyclone Track Set
- Land fall angle
- Probabilistic track set
- Historical track record
- Pressure
- Storm history
- Forward speed
- Radius of max winds
- Near term frequency
- Climatology

 NOAA Slosh Model
- Bathymetry
- Flood Protection
- Mean surge height
- Basin
- Topography

Flood depth
Inland flood modeling

Input data
- Climate data (i.e. precipitation)
- Surface data (i.e. Land use)
- Surface data (i.e. elevation)

Modeling
- Swiss Re Patented Flood Zones
  - The probability a location floods is a function of the vertical and horizontal distance from a river, and the catchment area.

Flood events – extent and depth of water

- Observed, Simulated
- Water depth to damage

- Damage (% TIV)
Hurricane Harvey
2011 Land use data

- Man Made Impacts – Importance of local data
  - Largest city in the US without zoning laws.`
  - Urban development has decreased the lands ability to absorb water.
  - Between 1992 and 2010, around 30% of wetland area was lost to development.
  - Significant development up to and around flood control dams.
Inland flood: managing adverse selection

NFIP rates are based on a lower resolution of flood zone mapping (essentially V, A and X zones)

Swiss Re models provide a high resolution view of flood risk
Supported by a reinsurance partner with superior financial strength

More than ten years of R&D yielding a patented, fully probabilistic flood model including both storm surge & inland flood across the US

Swiss Re flood toolkit
Swiss Re - Risk scoring setup

Graphical User Interface

1. API data transferred from Graphical User Interface to SR system

Factor inputs

2. SR system provides Risk Score Value to client system

• Number of stories
• Basement info
• First floor elevation
• ...

Premium output

3. Risk Score Value converted to Technical Rate

Consumer premium

4. Factor Inputs combined with Technical Rate to derive required SR premium

Storm surge: $200
Freshwater flooding: $15

5. Loadings applied to derive customer premiums
Future of Private Flood Insurance

Homeowners v Commercial

Global Carriers
Strong participant in Commercial Flood. Exploration of Personal Lines Flood, but yet to make a significant impact.

“National” Homeowners Carriers
Hesitant to enter the flood market.

Regional Carriers
Interested and willing to participate in flood, but frequently lack the capital.

E&S Market
Strong participant in Commercial market. The E&S Market consists of creative and nimble solutions.

NFIP
NFIP will continue to play an important role in flood even with new private flood options.

Challenges

Agents

Regulators

Reinsurers

Product Choices

Primary Carriers

Information

Technology
Future of Private Flood Insurance – Primary Carriers & Product Choices (Important for LA)

• Risk selection & Rating Plan: Homogeneous v Heterogeneous portfolio?
• Policy Type: Stand-Alone or Endorsement
• Opt-in v Opt-out
• Limit and Deductible
• Minimum Premium
• UW Manual
• Risk retention
• Accumulations
Future of Private Flood Insurance – Reinsurance, Regulators, Agents

Reinsurance:
- Reinsurer and Primary Carrier co-develop the product
- Primary carrier develops the product – Syndicated Treaty
- Reinsurer education: work in progress

Regulators:
- Flood Rating & UW vs. Other Perils: They are not same.
- Standards vary by State

Agents:
- Important stakeholder
- Accumulations
- MGAs
Future of Private Flood Insurance – Technology, Information & Challenges

Technology
• First Floor Elevation
• Satellite Technology
• Insure-Tech
• Product Set-up

Information & Challenges:
• Detailed claims information
• Repetitive / Unique Risks
• Climate Change
• Evolving Models / Incorporating Technology
• Legislation / Regulatory Differences by Region
• Financial Institutions / Lender Requirements
We applaud Louisiana for their work with Protection Gap and we encourage continued efforts to ensure flood coverage for all.
Legal notice

©2019 Swiss Re. All rights reserved. You may use this presentation for private or internal purposes but note that any copyright or other proprietary notices must not be removed. You are not permitted to create any modifications or derivative works of this presentation, or to use it for commercial or other public purposes, without the prior written permission of Swiss Re.

The information and opinions contained in the presentation are provided as at the date of the presentation and may change. Although the information used was taken from reliable sources, Swiss Re does not accept any responsibility for its accuracy or comprehensiveness or its updating. All liability for the accuracy and completeness of the information or for any damage or loss resulting from its use is expressly excluded.